



National Aeronautics and Space Administration

Space Launch System America's Flagship for Exploration

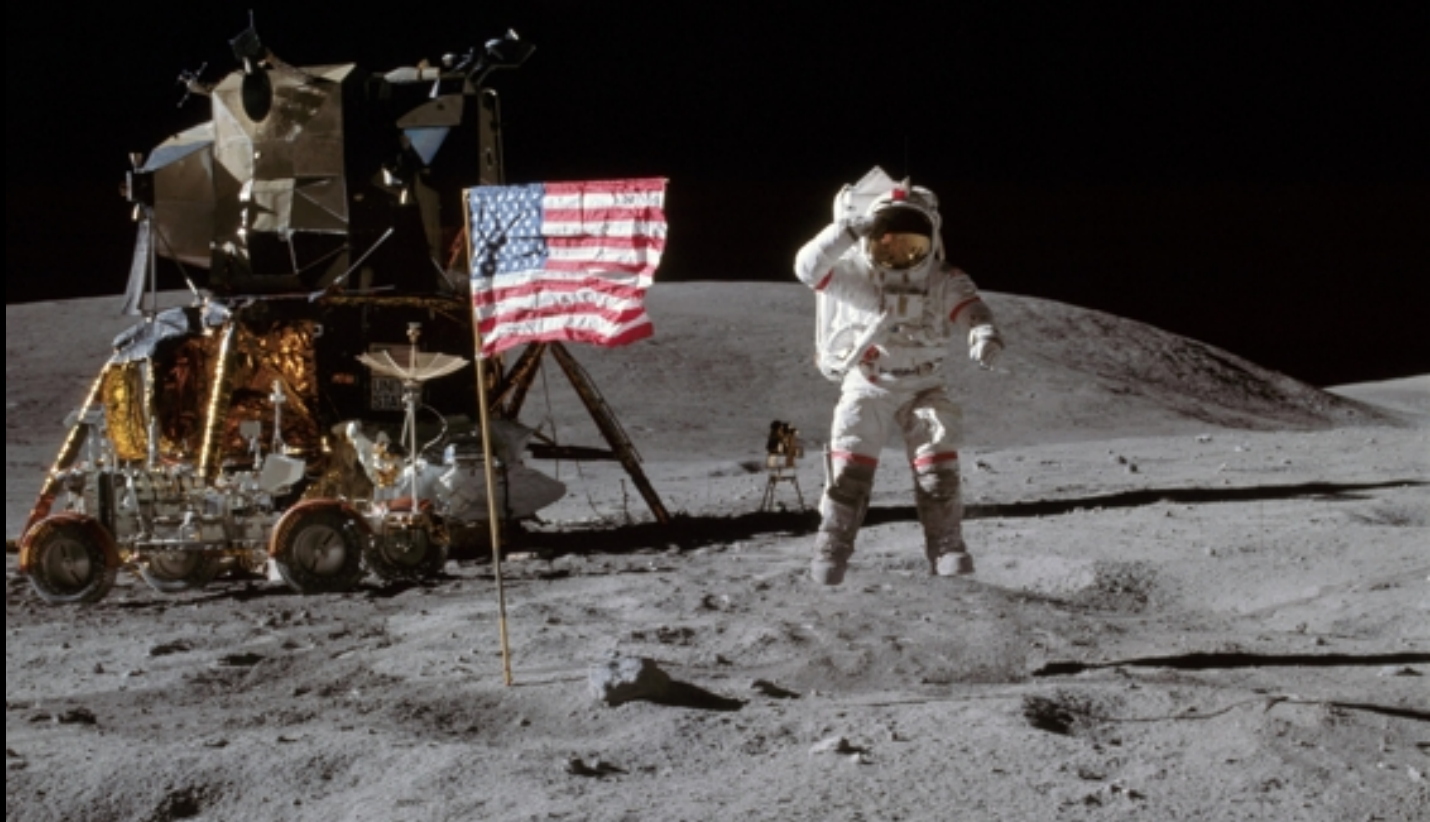


David Hitt
Strategic Communications

May 2014



“One Giant Leap for Mankind”



NASA changed the world in the 1960s
when astronauts walked on the Moon.



The
**most
complex
machine
ever built**



The Space Shuttle was an
unrivaled workhorse for spaceflight.



Living & working on Earth's space station



Human beings have been in space
every minute since October 2000.

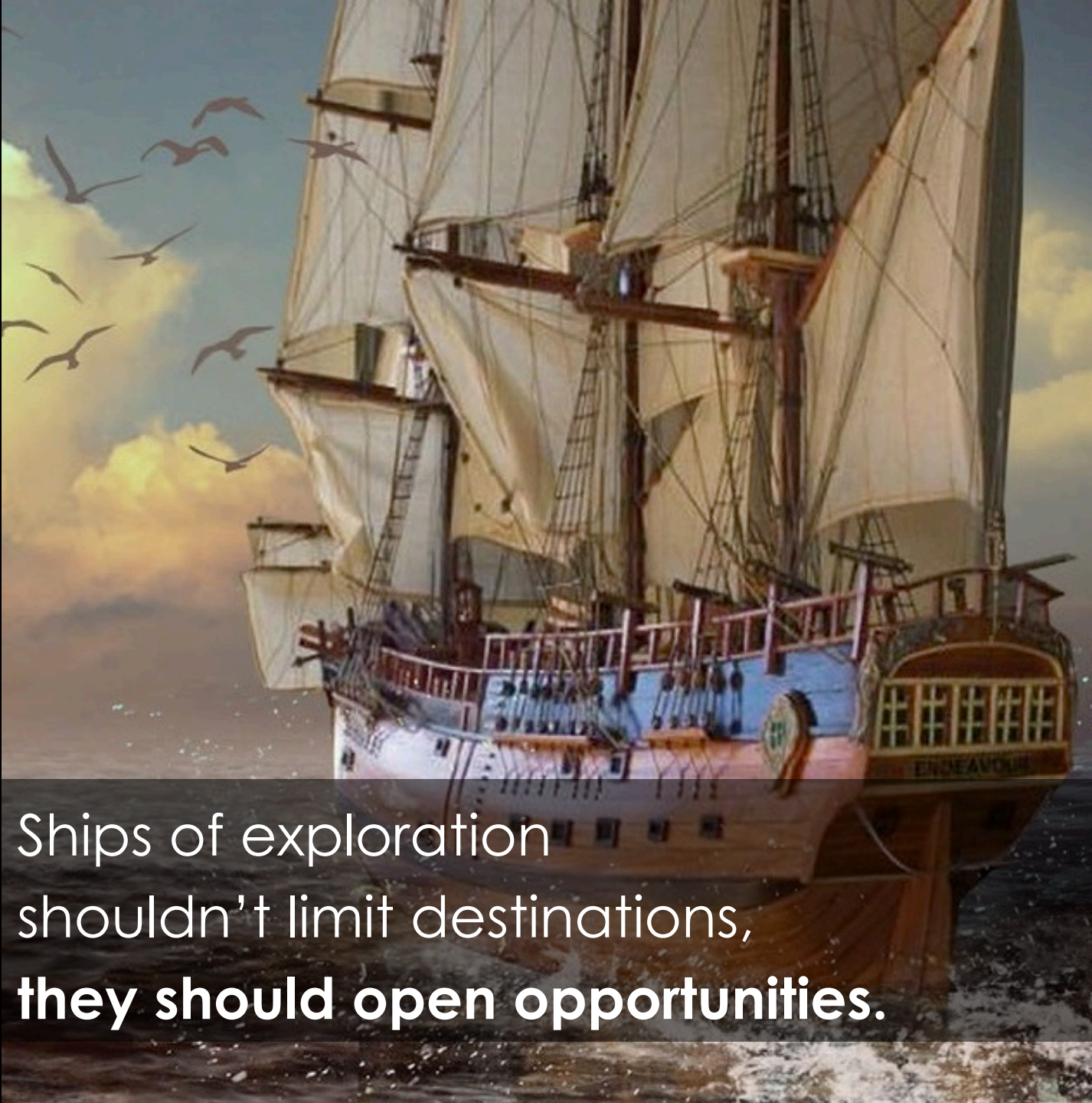


A Deeper Purpose, **A Bolder Mission**

**"We reach for new heights
and reveal the unknown for the
benefit of humankind."**



The Next Great Ship

A large, multi-masted sailing ship with white sails and a blue hull, sailing on a dark sea under a dramatic, cloudy sky. Several birds are flying in the sky. The ship's name "ENDEAVOUR" is visible on the stern.

Ships of exploration
shouldn't limit destinations,
they should open opportunities.



NASA's Space Launch System

Launching Soon.
Building Today.





**Building
on
heritage.
Creating
a legacy.**



**SLS builds on NASA's best.
And makes it even better.**



Proven
success.
Greater
power.

Stage Adapters:

The Orion stage adapter will be the first new SLS hardware to fly.

Core Stage:

Newly developed for SLS, the Core Stage towers more than 200 feet tall

RS-25 Engines:

Space Shuttle engines for the first four flights are already in inventory



Orion:

Carries astronauts into deep space

Interim Cryogenic Propulsion Stage:

Based on the Delta IV Heavy upper stage; the power to leave Earth

Solid Rocket Boosters:

Built on Space Shuttle hardware; more powerful for a new era of exploration



Starting Big, Building Bigger



New Technologies:

Pushing the envelope for the launch vehicle industry

Upper Stage:

Providing greater in-space propulsion for leaving Earth

Upper Stage Engine:

Creating a new state-of-the-art for the U.S. launch industry

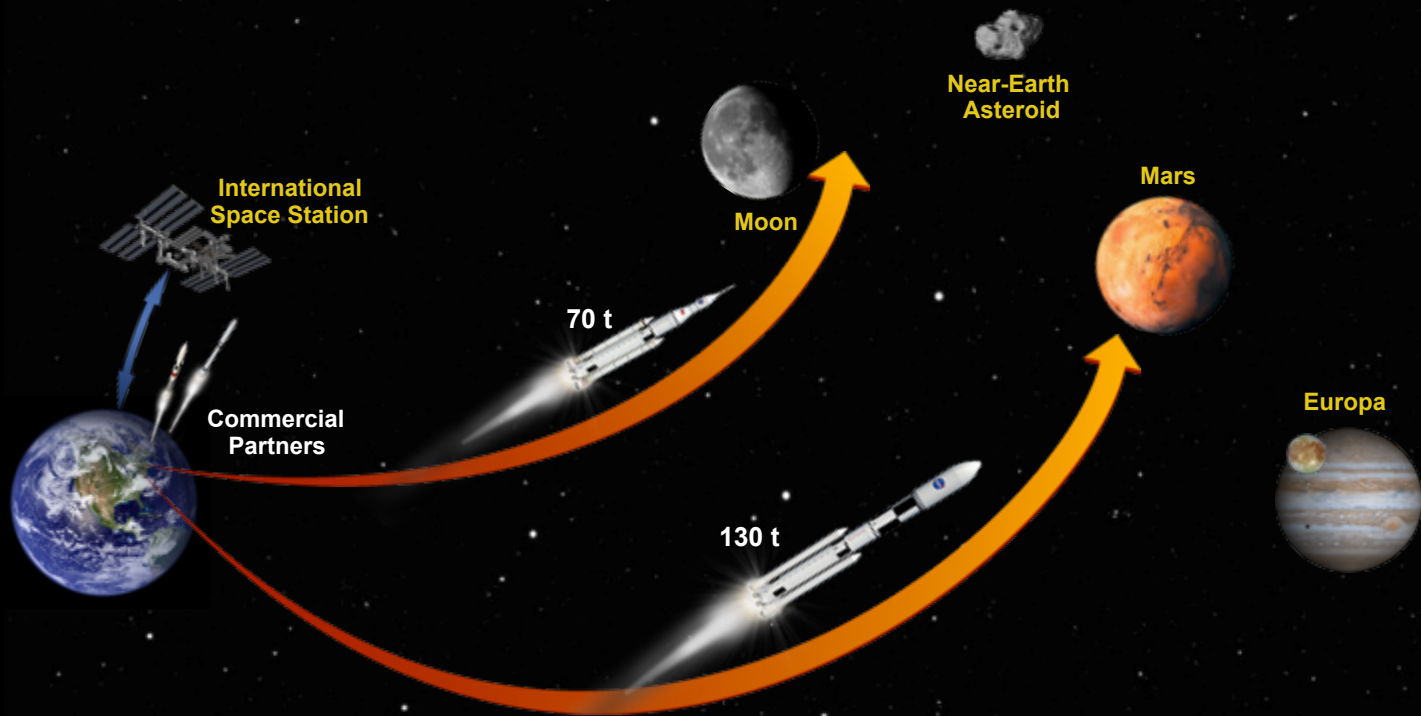
Advanced Boosters:

Generating the power to launch large payloads to deep space





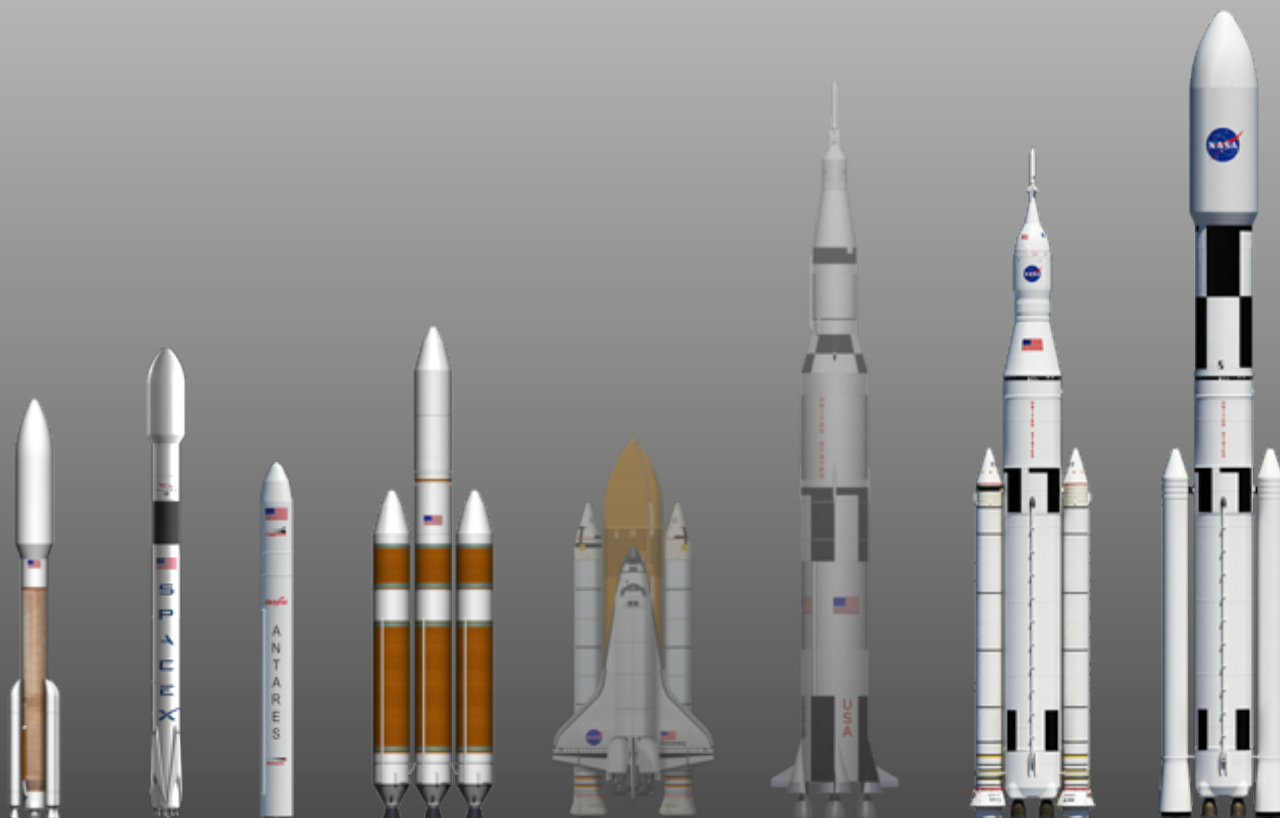
Working
together
so we
can go
farther



With our partners launching to orbit,
we can begin a new era of exploration.



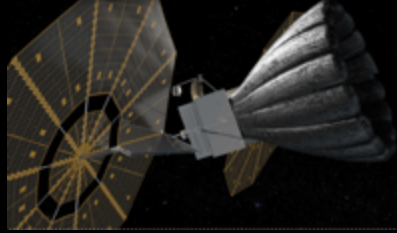
Bigger
Rocket =
Unrivaled
Mass,
Unrivaled
Volume



Enables missions
no other rocket can perform.



Asteroid Rendezvous



Deep Space Telescope



GEO Servicing



Versatile
enough
for a
universe of
possibility

Space Habitat



Solar Probe



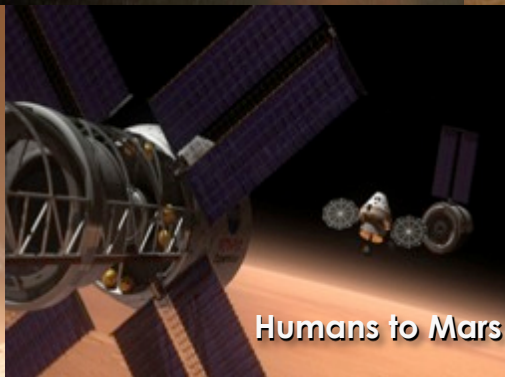
Mars Sample Return



Mars Cargo Lander



Humans to Mars



Europa Clipper



Enceladus Return



Uranus Spacecraft



Interstellar





A
national
resource
**the nation
can
afford**



Innovatively designed to be
affordable within a limited budget.



**'Stack it.
I'm
ready.'**
—Tony
Antonelli



After an in-depth technical review,
the SLS Program is ready to build.



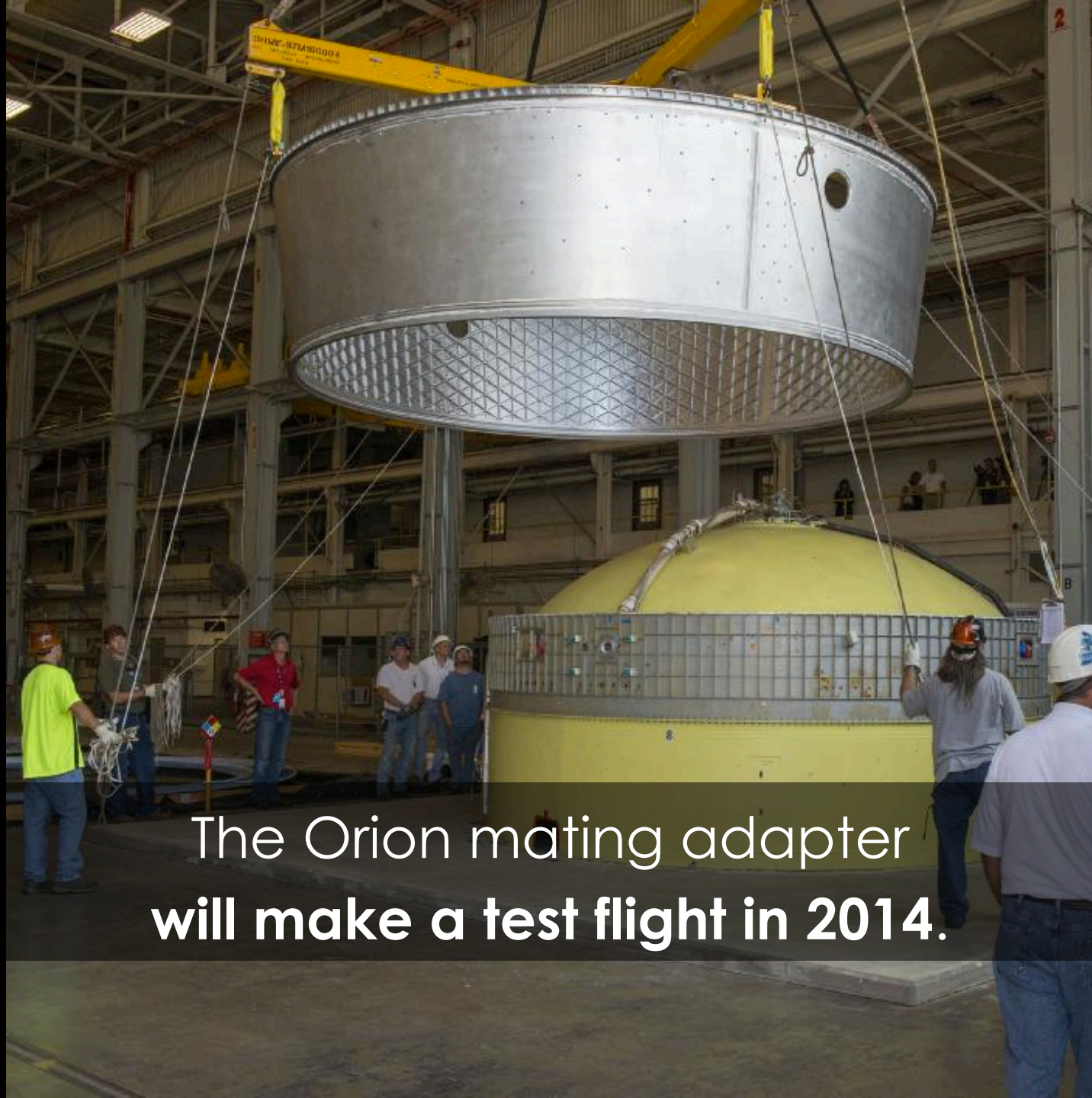
Core Stage is taking shape

New tooling is installed at Michoud
and confidence welding has begun.





Our first
payload
adapter
hardware
is ready
to fly



The Orion mating adapter
will make a test flight in 2014.



Testing is soon for **RS-25** engines



Test stand upgrades being made now
will support RS-25 test firings in 2014.



New
upgrades
are being
tested for
**Solid
Rocket
Boosters**

Three successful test firings
demonstrated the five-segment motor.





SLS's first launch will send Orion
farther than Apollo ever traveled.

SLS flies
for the
first
time in
2017!





SLS is the first step in the **journey to Mars**

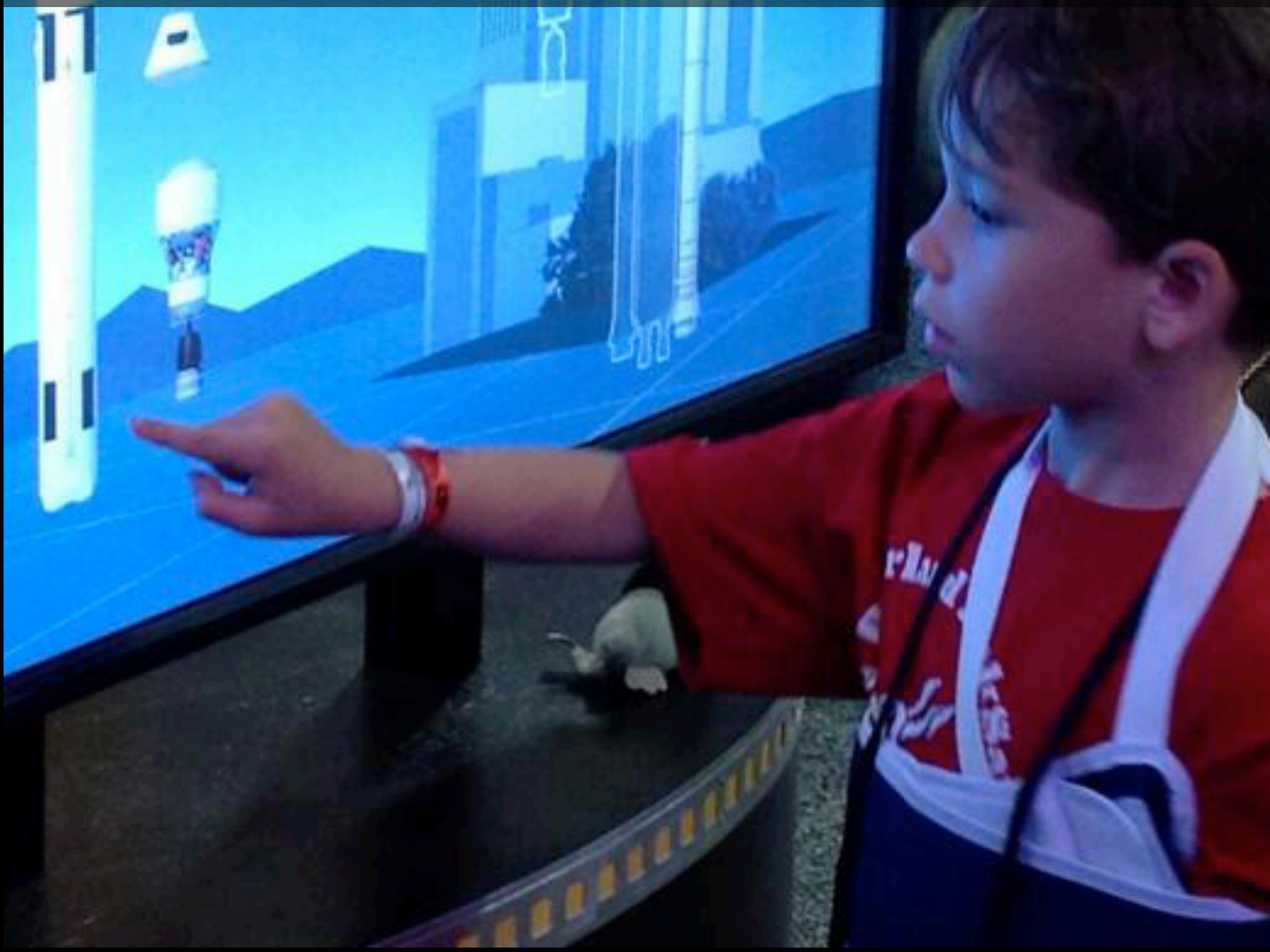


Going to Mars will be difficult.
SLS provides the power that it takes.



We explore space to promote
inspiration, security, diplomacy,
knowledge, technology & prosperity.

Going
out there
to better
life here





The
biggest
challenges
aren't
always
technical



The SLS team is making great progress.
Help us share our story.

Man cannot discover
new oceans
unless he has the
courage to lose
sight of the shore.



Join us on
the journey

www.nasa.gov/sls
www.twitter.com/nasa_sls
www.facebook.com/nasasls
www.instagram.com/explorenasa





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The Path To Mars

HUMAN EXPLORATION

NASA's Path to Mars



EARTH RELIANT

MISSION: 6 TO 12 MONTHS
RETURN TO EARTH: HOURS



Mastering fundamentals
aboard the International
Space Station

U.S. companies
provide access to
low-Earth orbit

PROVING GROUND

MISSION: 1 TO 12 MONTHS
RETURN TO EARTH: DAYS



Expanding capabilities by
visiting an asteroid redirected
to a lunar distant retrograde orbit

The next step: traveling beyond low-Earth
orbit with the Space Launch System
rocket and Orion spacecraft



MARS READY

MISSION: 2 TO 3 YEARS
RETURN TO EARTH: MONTHS



Developing planetary independence
by exploring Mars, its moons and
other deep space destinations



Exploration Mission-1

Distant Retrograde Orbit



SIMULATED LAUNCH
ABORT SYSTEM (LAS)

ORION CREW
MODULE (CM)

LAUNCH VEHICLE/
STAGE ADAPTER

CORE STAGE

SOLID ROCKET
BOOSTERS (2)

RS-25
ENGINES (4)





Global Exploration Roadmap 2.0



2013

2020

2030



International Space Station

General Research and Exploration
Preparatory Activities

Note: ISS partner agencies have agreed to use the ISS until at least 2020.

Commercial or Government Low-Earth Orbit Platforms and Missions

Robotic Missions to Discover and Prepare



Mars Sample
Return and
Precursor
Opportunities

Human Missions Beyond Low-Earth Orbit



Explore Near-Earth Asteroid

Extended Duration Crew
Missions

Humans to
Lunar Surface

Missions to
Deep Space and
Mars System

Sustainable
Human Missions
to Mars Surface



Doing the
**heavy
lifting**
for space
exploration

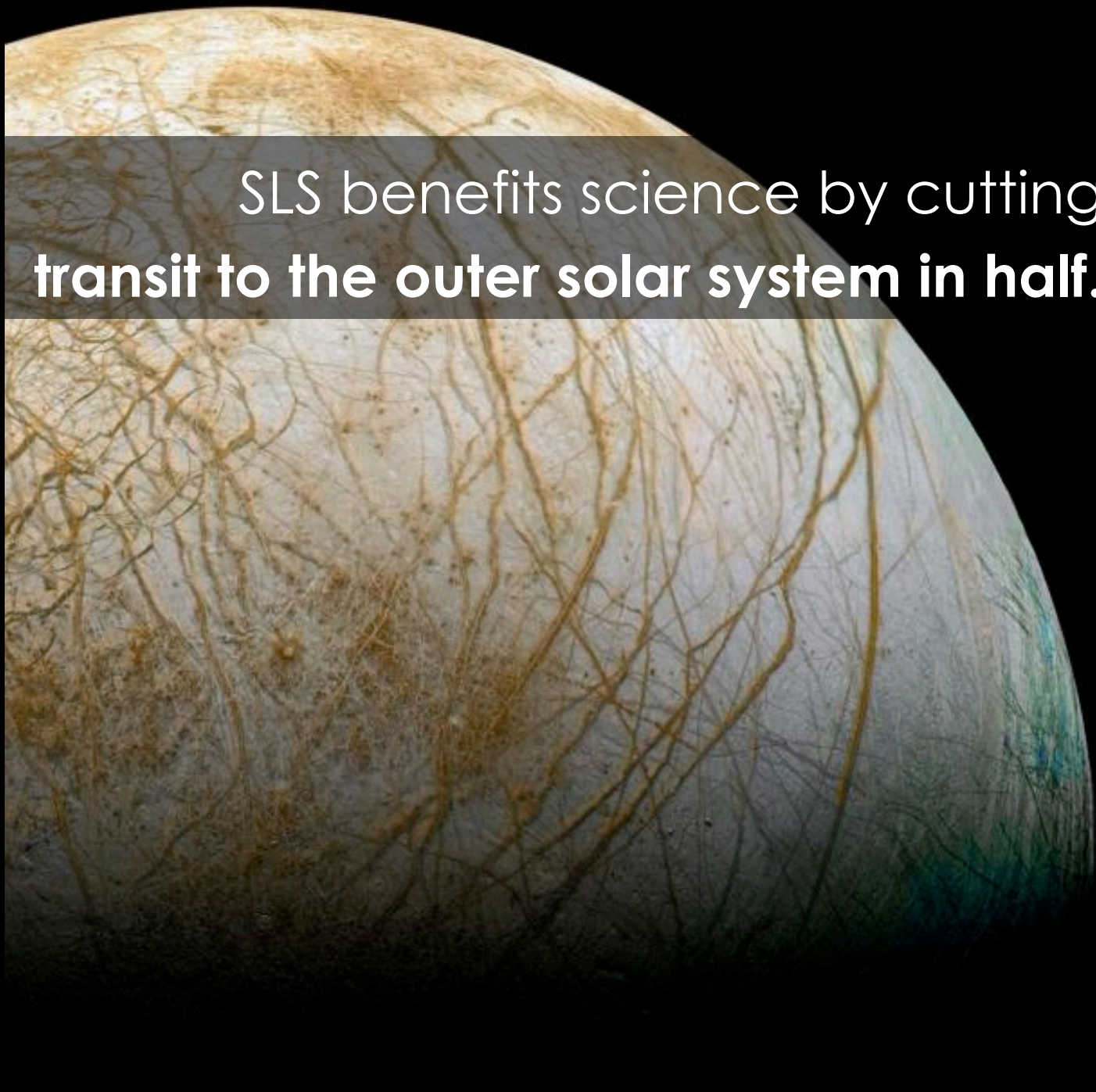


Unrivalled mass lift capability means
larger payloads and reduced risk.



SLS benefits science by cutting
transit to the outer solar system in half.

Greater
power
means
**greater
versatility**





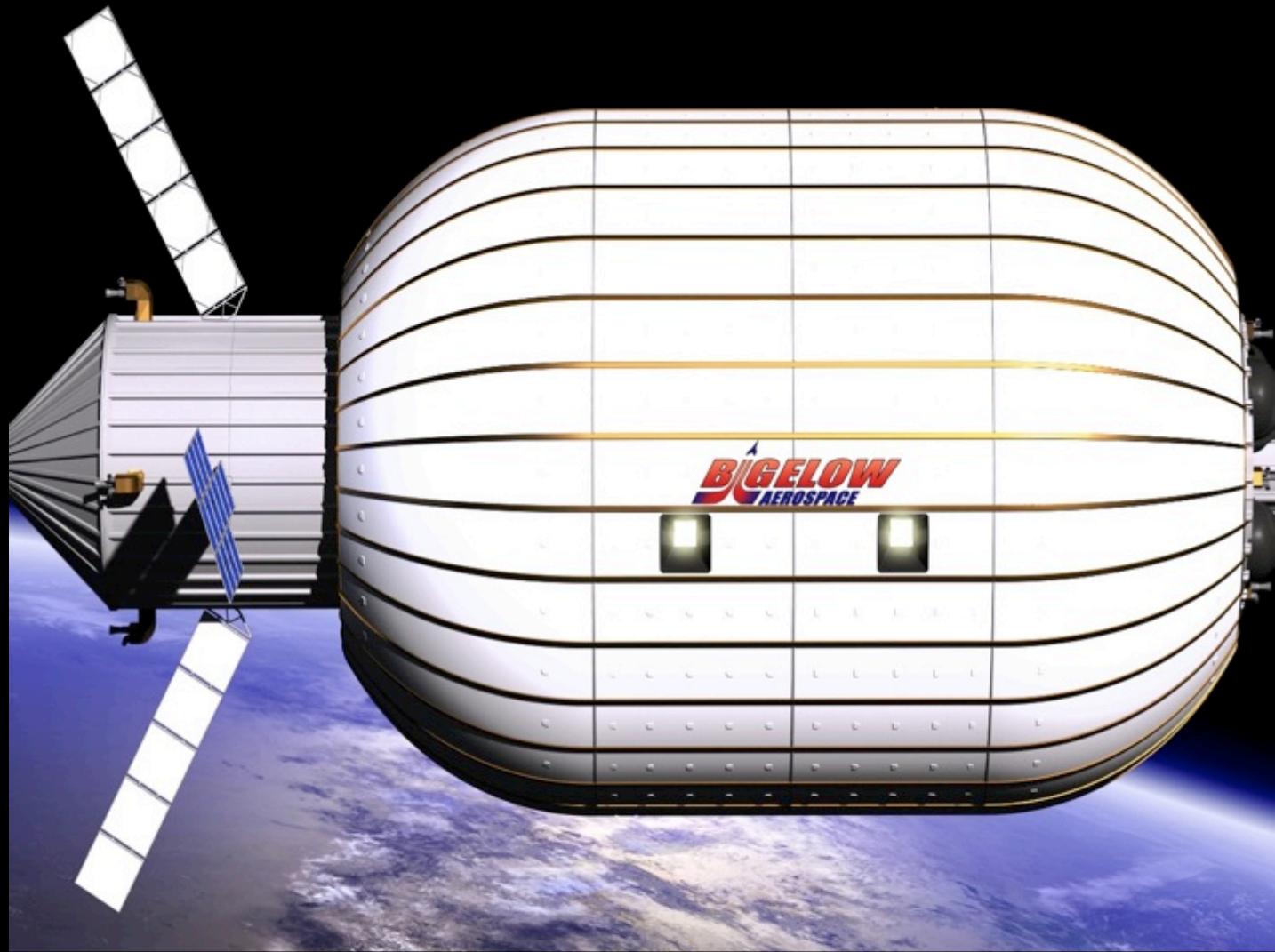
The world's largest payload fairings
change the game for mission design.

Having
more space
for payloads
lets you do
more in
space





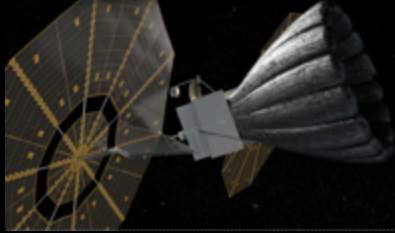
**A vital
resource
for the
space
industry**



**Space Launch System will open new
opportunities for investment in space.**



Asteroid Rendezvous



Deep Space Telescope

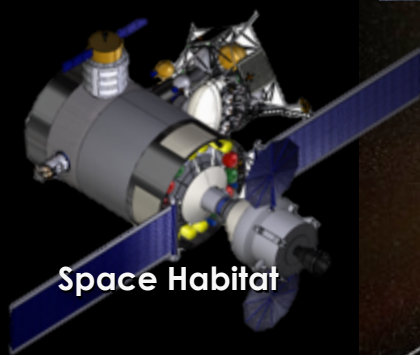


GEO Servicing

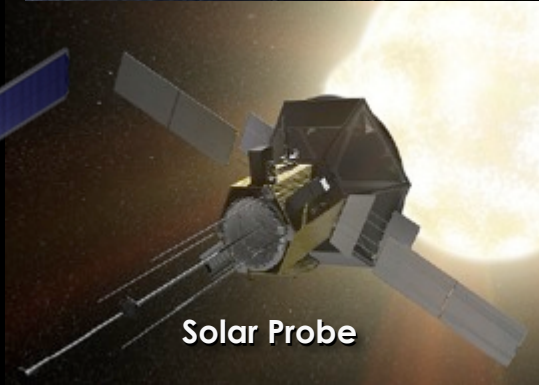


Versatile
enough
for a
universe of
possibility

Space Habitat



Solar Probe



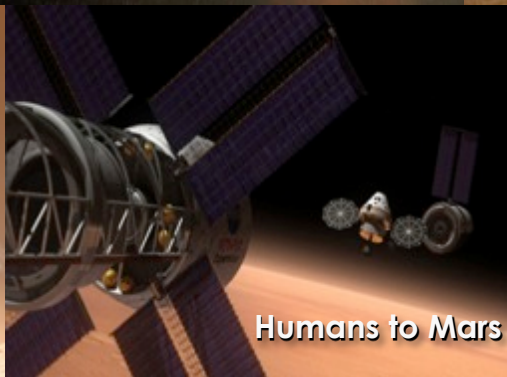
Mars Sample Return



Mars Cargo Lander



Humans to Mars



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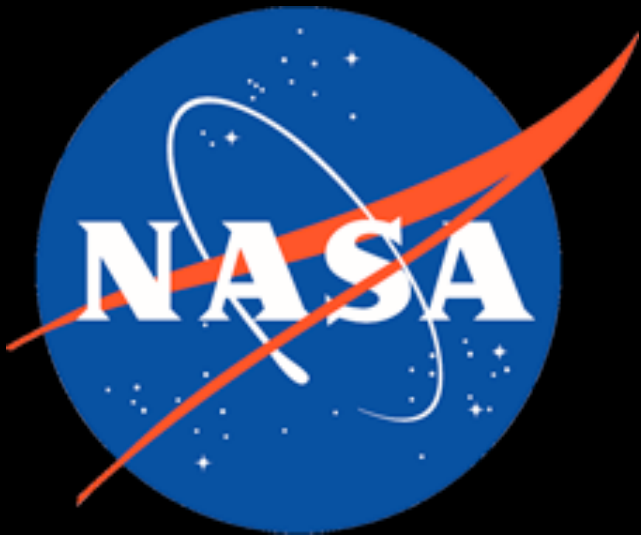
Uranus Spacecraft



Interstellar



Man cannot discover
new oceans
unless he has the
courage to lose
sight of the shore.



Join us on
the journey

www.nasa.gov/sls
www.twitter.com/nasa_sls
www.facebook.com/nasasls
www.instagram.com/explorenasa

